



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND  
INTERFERENCES

AF \$  
1733  
#12/1009  
10/19/01

re the  
application of: CHARLES E. BOWERS

Docket: 30-2138CIP2

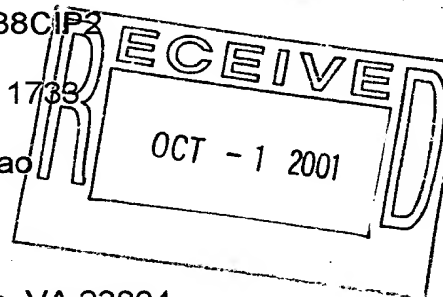
Serial Number: 09/143,583

Group Art Unit: 1733

Filed: August 31, 1998

Examiner: S. Yao

For: YARN WITH HEAT-ACTIVATED BINDER MATERIAL



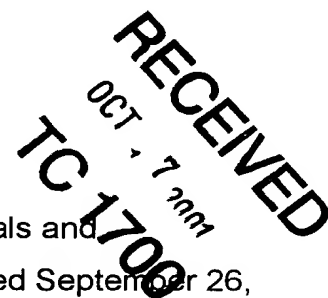
Colonial Heights, VA 23804  
September 26, 2001

BRIEF ON APPEAL

Assistant Commissioner for Patents  
Washington, D.C. 20231

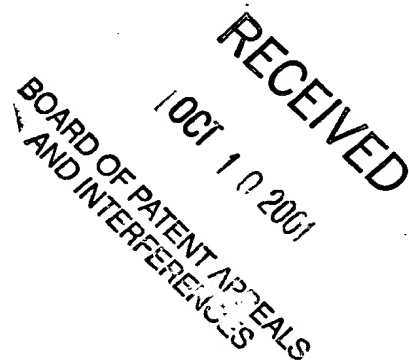
Sir:

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the decision of the Primary Examiner mailed September 26, 2000, finally rejecting claims 1 through 3. A Notice of Appeal was filed on March 26, 2001. The Commissioner is authorized to charge the Appeal Brief Filing Fee [37 CFR §1.17(c)] of \$310.00 to Deposit Account No. 01-1125. The Commissioner is authorized to charge \$1,390.00 for a four (4) month extension fee [37 CFR § 1.17(a)(4)] for filing the Appeal Brief or any additional fees which may be required by this paper, or credit any overpayment to Deposit Account No. 01-1125.



10/18/2001 CNGUYEN 00000016 011125 09143583

01 FC:120 320.00 CH  
02 FC:118 1440.00 CH



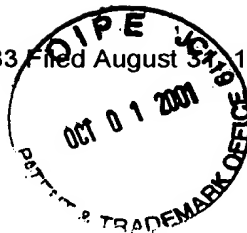


TABLE OF CONTENTS

Page No.

|       |   |   |
|-------|---|---|
| I.    | REAL PARTY IN INTEREST .....            | 3 |
| II.   | RELATED APPEALS AND INTERFERENCES ..... | 3 |
| III.  | STATUS OF CLAIMS .....                  | 3 |
| IV.   | STATUS OF AMENDMENTS .....              | 3 |
| V.    | SUMMARY OF THE INVENTION .....          | 4 |
| VI.   | ISSUES .....                            | 4 |
| VII.  | GROUPING OF CLAIMS .....                | 4 |
| VIII. | ARGUMENTS .....                         | 4 |
| IX.   | APPENDIX .....                          | 7 |

RECEIVED  
OCT 17 2001  
TC 1700

**I. REAL PARTY IN INTEREST**

The real party in interest is Honeywell International Inc., successor in interest to AlliedSignal Inc., which is the assignee of record.

**II. RELATED APPEALS AND INTERFERENCES**

The parent application of which this is a continuation in part, USSN 08/792,819, filed January 30, 1997, has claims (numbered 38-45) on appeal, mailed June 7, 2001. A divisional of the parent application, USSN 08/593,178, filed February 1, 1996, has claims (numbered 48-67) on appeal, mailed November 19, 1998. There are no other related applications on appeal or subject to an interference that are known to appellant, appellant's legal representative or the assignee that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

**III. STATUS OF CLAIMS**

Claims 1, 2 and 3 are presented on appeal. These claims have been finally rejected in the Office Action identified above. A copy of the claims on appeal is attached in the Appendix under Section IX. No claims are allowed.

In particular, claims 1, 2 and 3 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lofquist, U.S. Patent 5,478,624.

Claims 1, 2 and 3 further stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16, 18 and 21 of co-pending Application No. 08/933,822. This provisional rejection does not present an issue on appeal.

**IV. STATUS OF ALL AMENDMENTS FILED SUBSEQUENT TO FINAL REJECTION**

There have been no amendments filed subsequent to the issuance of the Final Rejection mailed September 26, 2000.

## V. SUMMARY OF THE INVENTION

The invention is a process for producing plied tufting yarns by twisting and heating two or more ring spun or wrap spun yarns. The ring spun or wrap spun yarns are formed by ring spinning or wrap spinning a fiber bundle with a second fiber comprising a heat-activated binder material. The ring spinning or wrap spinning places the heat-activated binder fibers uniformly and continuously around the base fibers during twist insertion or wrapping to form the spun yarn. Since the heat-activated binder fibers are twisted or wrapped in a uniform, continuous spiral around the base fibers during yarn formation, the base fibers along with heat-activated binder fibers are uniformly held in place along the yarn length. These yarns are then plied, followed by a heating step. The resulting plied yarn has less thick and thin irregularities along the length, and the intersecting "touch points" of heat activated binder fibers and base fibers are uniformly distributed around the spun yarns and between the plied yarn ends.

## VI. ISSUES

Whether claims 1, 2 and 3 are unpatentable under 35 U.S.C. §103(a) over Lofquist, U.S. Patent 5,478,624.

## VII. GROUPING OF CLAIMS

Claim 1 is the independent claim, from which claims 2 and 3 directly depend. Claim 3 does not stand or fall with claim 1 for the reasons set forth under the Arguments below.

## VIII. ARGUMENTS

It is the Examiner's position that Lofquist teaches Appellant's claims 1 and 2 process, but for the ring spinning or wrap spinning technique and the uniform twisting or wrapping of the binder material-containing fiber about another fiber. The ring spinning and wrap spinning techniques are deemed by the Examiner to be routine in the art, and the uniform wrapping of a fiber bundle with binder fiber material is deemed by the Examiner to be well within the purview of choice in the art. Appellant disagrees for the reasons that follow.

For prima facie obviousness a reference must provide motivation for one of ordinary skill in the art to modify the prior art structure to arrive at Appellant's invention with a reasonable expectation of success in achieving the advantages

of the invention. There must be a sufficient basis to conclude that the proposed modification was obvious to do – obvious to try is not the standard. In re Antonie, 195 USPQ 6 (CCPA 1977). During this consideration, all of the claim limitations must be considered. In re Kuehl, 177 USPQ 250 (CCPA 1973). Where the art of record contains no teaching or suggestion of the cause and effect relationship discovered by Appellant, the invention is not prima facie obvious.

The Examiner readily admits that Lofquist does not expressly teach either the ring spinning or wrap spinning of a base fiber bundle with a second, binder material-containing fiber to form a yarn characterized by the second fiber being twisted or wrapped uniformly around the base fiber bundle. The Examiner further states that the process taught by Lofquist (which he deems to be commingling of binder fibers with bulk continuous base fibers), if modified to a wrap spinning or ring spinning technique, would apparently uniformly wrap the binder material-containing fiber around the base fiber. Appellant asserts that this is hindsight, given Appellant's teaching.

A commingled yarn intermixes filaments "without adding twist or otherwise disturbing the parallel relationship of the combined filaments." See attached definition and accompanying drawing figure from Dictionary of fiber & Textile Technology, Hoechst Celanese, p. 32, 1990. There would therefore be no motivation to modify Lofquist. Furthermore, although it is known in the art to form a yarn where a binder strand is spirally wrapped around a core strand, such a binder strand physically binds the wrapped fiber to permit downstream processing. See statement and references cited by Appellant in the specification on page 3, lines 4-9. Appellant is unaware, however, of any teaching or suggestion that such a spirally wrapped binder strand contains heat-activated adhesive material, as required by the claims on appeal.

Appellant acknowledges that Lofquist teaches use of base staple fiber blended with a staple binder fiber for subsequent processing. Appellant respectfully submits, however, that this falls short of teaching or suggesting Appellant's invention as claimed in claim 3 wherein the base fiber bundle (to be wrapped) is formed from staple filament. Nor is there any suggestion that the fiber bundle of Lofquist should be used to twist or wrap uniformly around a base fiber bundle. Further, there is nothing in Lofquist to even hint at Appellant's

IX. APPENDIX - CLAIMS ON APPEAL

1. A process for producing a yarn suitable for tufting, said process comprising the steps of:
  - a. forming a bundle of fiber;
  - b. ring spinning or wrap spinning the bundle of fiber with a second fiber comprising a heat-activated binder material having melting point range of about 105° to 190°C under ambient conditions to form a yarn;
  - c. twisting two or more of the yarns to form a plied yarn comprising 0.1 to 12 weight percent of the binder material;
  - d. heating the plied yarn sufficiently to melt the binder material; followed by
  - e. cooling the plied yarn to solidify the binder material.
2. The process of claim 1 wherein said heating step occurs during twist setting of the plied yarn.
3. The process of claim 1 wherein the bundle of fiber is formed by spinning staple fiber.

unique process of plying these materials after the binder material/fiber has been wrapped around the other fiber, followed by heating.

CONCLUSION

For all of the above reasons, the rejections of claims 1, 2 and 3 under 35 U.S.C. §103(a), as being unpatentable, should be reversed.

Respectfully submitted,  
CHARLES E. BOWERS

By: Virginia Szigeti Andrews  
Virginia Szigeti Andrews  
Appellant's Attorney  
Reg. No. 29,039  
(804)520-3651

Attachments: Appendix IX  
3 pages from Dictionary

Honeywell International Inc.  
Law Dept.  
15801 Woods Edge Road  
Colonial Heights, VA 23834

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING  
DEPOSITED WITH THE UNITED STATES POSTAL SERVICES AS  
FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO:  
ASSISTANT COMMISSIONER FOR PATENTS, WASHINGTON,  
D.C. 20231

ON: Sept. 26, 2001  
DATE

**Virginia Szigeti Andrews**  
NAME OF APPLICANT, ASSIGNEE OR APPLICANT'S ATTORNEY

Virginia Szigeti Andrews  
SIGNATURE

Sept. 26, 2001  
DATE

# Dictionary

Of Fiber & Textile Technology

Hoechst Celanese

Hoechst 



To the best of our knowledge, the information contained herein is accurate. However, neither Hoechst Celanese Corporation nor any of its divisions or affiliates can accept liability of any kind for the accuracy or completeness thereof. Final determination of the suitability of any information or material for the use contemplated, of its manner of use, and whether the suggested use infringes any patents is the sole responsibility of the user.

Copyright 1989, 1990 Hoechst Celanese Corporation. All rights reserved.  
Copyright 1965, 1967, 1974, 1978 Celanese Corporation. All rights reserved

*Copies of this book may be ordered through your Hoechst Celanese Film & Fibers Group representative or from:*

**Product/Technical Communications Services, IZ 503**  
**Hoechst Celanese Corporation**  
**P O Box 32414**  
**Charlotte, NC 28232**  
**704 554 3081**  
**FAX 704 554 3800**

## Acknowledgements

We wish to express our gratitude to the edition of the Dictionary of Fiber and make it current and accurate.

Association of the Nonwoven Fabrics  
Bibb Manufacturing Company

John W. Gauthier  
John Gauthier Marketing Support Ser

Jordan Levin  
Fabric Development, Inc.

Janice Maiden  
Textile Technologies, Inc.

Rick Nye  
Samson Ocean Systems

Marlene Paul  
Lockheed Aeronautical Systems

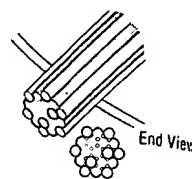
Herbert T. Pratt  
ASTM, SC D 13.92, Terminology

Garrett C. Sharpless  
Fiber Innovations, Inc.

Randal W. Spencer  
Concordia Manufacturing Company,

Special thanks to the numerous Hoechst  
terms and reviewed the change:

**COMMINGLED YARN:** In aerospace textiles, two or more continuous multifilament yarns, the filaments of which have been intermixed with each other without adding twist or otherwise disturbing the parallel relationship of the combined filaments. Usually consists of a reinforcing yarn, such as graphite or glass, and a thermoplastic matrix yarn.



Commingled Yarn

**COMPACTED YARNS:** Air-jet interlaced yarns. Since the entanglement serves only as a substitute for twist, the degree of interlace or tangle is not as great as in air-jet bulked yarns.

**COMPACTION:** See INTERMINGLING.

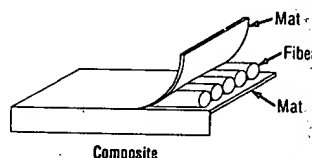
**COMPACTOR:** A machine developed by Fabric Research Laboratories which is used to compact fabrics or to produce warp-stretch fabrics by means of forced crimp and/or shrinkage of the warp yarn.

**COMPACT SPINNING PROCESS:** A term generally referring to a spinning process carried out using any one of the several small spinning machines of compact design offered by equipment vendors as "packaged" units in which spinning and subsequent processing (drawing, crimping, cutting, etc.) are linked.

**COMPATIBLE SHRINKAGE:** A term used for bonded fabrics to indicate that the face fabric and lining have similar shrinkage. This is necessary to avoid puckering.

**COMPLIANCE:** The ability of a fiber to yield under stress; the ratio of the change in strain to the change in stress that produces it; the reciprocal of the textile modulus.

**COMPOSITE:** 1. An article or substance of two or more constituents, generally, with reinforcing elements dispersed in a matrix or continuous phase. 2. Hard or soft constructions in which the fibers themselves are consolidated to form structures rather than being formed into yarns. Rigidity of these constructions is controlled by the density, the modulus of the load-bearing fibers, and the fraction of fusible fibers. Strength is controlled by adhesion and shear-yield strength of the matrix unless fibers are bonded in a load-transferring matrix. 3. A structure made by laminating a nonwoven fabric with another nonwoven, with other materials, or by impregnating a nonwoven fabric with resins.



**COMPOSITE FIBERS:** Fibers composed of two or more polymer types in a sheath-core or side-by-side (bilateral) relation.

**COMPRESSIBILITY:** Refers to the ease of reducing the bulk of fabric, carpet, batting, or other material. May be high or low, soft or hard.

**CONDENSATION POLYMER** product in which the repeating monomers. Generally, the separation occurs as a result of the reaction.

**CONDITIONING:** A process (of yarns and fabrics) to reach hygroscopic equilibrium. Materials may be conditioned for testing purposes or in actual processing areas.

**CONE:** A conical package of yarn.

**CONING:** The transfer of yarn from packages to cones.

**CONJUGATE FIBER:** A two-component fiber (hot or hot/wet treatment required). (BILATERAL FIBERS.)

**CONJUGATE YARN:** A yarn made of conjugate fibers.

**CONSOLIDATION:** Application of heat and pressure to structures.

**CONTACT ANGLE:** The angle between the surface of a partially submerged object and the tangent to the surface at the point of contact. The smaller the contact angle, the more wettable the surface.

**CONTINUOUS FILAMENT:** A filament that does not break during the spinning process.

**CONTINUOUS FILAMENT YARN:** A yarn made of continuous filaments.

**CONTINUOUS POLYMERIZATION:** A process in which the polymerization reaction takes place continuously from the beginning to the end of the process.

In polymer manufacture, like the various stages of polymerization, so that materials flow without interruption from the addition of materials to delivery of the polymer from the system. Either as film, chip or fiber may be produced. A continuous polymerization process cause there is no break in the chain while the transition from low molecular weight to high occurs. Multiple stage reaction vessels required and accurate process control is critical.

**CONTRACTION:** See TAKE-UP (TWIST) or TAKE-UP (YARN).

**CONVERTED FABRIC:** A fabric that has been converted from one form to another.